Space Weather Forecast

Issued on Saturday, 28 May 2022 at 13:18 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight and reducing chance of Moderate-class flares. G1/Minor Storms likely Day 1 (28 May), with slight chance of G2/Moderate Storms.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Low over the past 24 hours, with occasional low-level Common-class X-ray flares. There are currently four visible sunspot regions on the Earth-facing side, all of which are small and simple. The larger region in the northwest is no longer visible on the western limb, but it is still possible to see flares from this region. No Earth directed Coronal Mass Ejections (CMEs) have been observed in imagery in the last 24 hours, although a recent CME has yet to be analysed. This is unlikely to have a significant Earth directed component, however.

Solar Wind / Geomagnetic Activity: The solar wind was indicative of the arrival of a fast wind from a coronal hole. Wind speeds started around 350 km/s, rising to vary between 500-570 km/s after 28/0400 UTC. The Interplanetary Magnetic Field started strong, before gradually easing to weak to moderate. The north-south component varied strongly at first, gradually varying more weakly although mostly southward directed. Geomagnetic activity was Unsettled to Active, with several G1/Minor Storm intervals after 28/0000 UTC.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is now expected to be mainly Low. There is a slight and reducing chance of Moderate-class flares through this period. There are no obvious bright flux regions over the eastern limb at present, and any increase in activity would therefore probably need to arise from development of the current quiet front side.

Solar Wind / Geomagnetic Activity: One CME features in the current forecast, that emitted on 25 May. This could potentially give a glancing blow during Day 1 (28 May), but may have missed Earth. The Earth is currently experiencing the fast wind from a coronal hole. Elevated or slightly elevated wind speeds are likely to last into Day 3 (30 May), probably easing through Day 4 (31 May).
Geomagnetic activity is expected to be Unsettled to Active with further G1/Minor Storm intervals likely, and a slight chance of a G2/Moderate Storm interval if the CME does give a glancing blow. Geomagnetic activity should gradually ease to be mostly Quiet by Day 4.

Energetic Particles / Solar Radiation: Solar radiation storms should become less likely with time from now. The recent slight chance will now decline as the most potent spots rotate past their peak positions for affecting Earth.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	60	10	1	1
Strong	G3	No	2	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	5	3	3
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	2	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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